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Joan Stewart

EXHIBIT 1

**Articles appear in the order in which
they are cited in ACTA's Reply Comments.**

Industry Standards

Latest Netscape Web Client Hosts Internet Telephony, Multimedia Applications

The possibility of widespread use of Internet telephony, which led a group of telephone companies to petition for federal relief last month, looms larger than ever with the beta release by Netscape Communications Corp. of a web browser supporting interoperable Internet telephony and videoconferencing. Netscape's standards-based initiative has the backing of numerous hardware and software companies, including such giants as Apple Computer Inc. and IBM Corp. The idea of "Netscape LiveMedia" is to provide a common platform for multimedia applications to enable Internet users to enjoy real-time audio and video communications even when they are using different software and hardware.

For example, a user of Voxware's TeleVox Internet phone, running on a Microsoft Windows 95 PC, would be able to communicate with Apple's Quicktime Conferencing phone or Netscape's Internet telephony technology running on a Unix platform, Netscape advised in an April 30 release. Netscape's plan is to make Netscape LiveMedia a standard component in its clients, servers, and tools.

The entry of software companies into the audio communications market has created concern among some phone companies. The America's Carriers Telecommunications Association—a group of long-distance phone service resellers—has asked the Federal Communications Commission to regulate Internet telephony (1 EPLR 11, 35). Shortly after ACTA's petition was made public, Internet users began flooding the FCC with letters challenging ACTA's claim that providers of Internet phone software are telecommunications carriers that should be regulated by the FCC.

Some observers have argued that, in any event, Internet telephony is still in its infancy and, at this stage, is not in a position to compete with long-distance telecom services. However, Internet telephony seemingly is becoming a popular idea, as indicated by the strong support that Netscape's LiveMedia framework has garnered since its launch in late January.

Comments on the ACTA petition were due May 8 and reply comments are due June 8.

Netscape Navigator 3.0

The first elements of Netscape LiveMedia are part of the Netscape Navigator 3.0 beta release. They include Netscape LiveVideo, Netscape LiveAudio, and support for Internet telephony. The framework also will support new technology that Netscape gained in its acquisition of InSoft Inc., which permits users to view and edit graphics on a real-time basis by virtue of a shared "whiteboard." In addition to real-time audio conferencing, the new technology lets users send and receive calls directly from World Wide Web

pages and provides an answering machine and Web phone directory.

"LiveMedia is a vital industry initiative to deliver the cross-platform hardware and software products companies need for audio, video and telephone collaboration on intranets and the Internet," Bob Lisbonne, vice president of client product marketing at Netscape, said. The framework provides "an open foundation on which member technologies can innovate and interoperate," he added.

The initiative is based on Internet Realtime Transport Protocol (RTP), RFC number 1889, and other open audio and video standards such as MPEG, H.261 and GSM, Netscape advised.

Netscape LiveMedia has gained the support of the following companies, in addition to Apple and IBM: Adaptive Media Technologies, @ONCE, Adobe Systems, Digital Equipment Corp., Farallon Communications, Four11, Macromedia, NetSpeak, OnLive! Technologies, OZ Interactive, Precept Software, Progressive Networks, RADVision, Silicon Graphics, SoftCom, Starlight Networks, VDOnet, Vivo Software, VocalTec, Winnov, and Xing.

Hello, Ma Bell? Please hold for Ma Net



BARRY WONG / SEATTLE TIMES

Think fast: What's the cheapest way to make a phone call to Israel? Steve Ballmer, Microsoft's executive vice president, posed that question to Seattle Rotarians yesterday. The answer, he said, is the Internet — or it will be soon. In the booming voice for which he's known, Ballmer touted the benefits of the Internet and said it will revolutionize many businesses, including newspapers, general publishing, travel services and telecommunications. Microsoft, he said, is developing technology to allow widespread use of the Internet for unlimited long-distance phone calls for as little as \$20 a month.

Northern Telecom Will Use Java Technology in Phones

By a WALL STREET JOURNAL Staff Reporter

MOUNTAIN VIEW, Calif. — Northern Telecom Ltd. plans to use Sun Microsystems Inc.'s interactive-network technology to enable its next-generation telephone handsets to access the Internet.

The Ontario company said it will incorporate Sun's Java microprocessors and software in phones intended to be a new class of inexpensive Internet "appliances." Java software allows users to download applications from the Internet and its graphical portion, the World Wide Web. The Java chips will optimize the software's performance.

Many major computer and software companies have already licensed the Java software, but Northern Telecom is the first telecommunications company to do so, and the first major company to license Java's chips. Northern Telecom said the technology will be incorporated in its wired PowerTouch phones and its wireless digital phones, with customer trials scheduled next year. Theoretically such phones could, for example, download a real-estate agent's listings onto a small screen with an application allowing the user to analyze the listings with a spreadsheet or compute mortgage costs.

Intel to Introduce a Low-Cost System For Video Teleconferencing With PCs

By LEE GOMES

Staff Reporter of THE WALL STREET JOURNAL

Intel Corp. is preparing to unveil a new low-cost video teleconferencing system using regular telephone lines instead of higher-priced digital lines.

Intel plans to introduce the new teleconferencing package today. The system will operate on a 28.8 baud modem, the fastest traditional modem available. Intel will supply software and technical specifications for the modems to PC makers, who will add a video camera and market their PCs as "video ready." The package should increase the price of a new PC by about \$200, Intel said.

Compaq Computer Corp. is expected to be the first PC maker to offer the new system, starting in late summer. The video system will require a Pentium chip with a speed of at least 133 megahertz, near the low end of the new PC market.

Standard Telephone Call

Using Intel's package, users will be able to call each other by telephone over standard telephone lines, then switch over to PC teleconferencing on the same line. On a 15-inch computer monitor — the size found on most new PCs — the video picture would measure four by five inches. Because of the relatively low transmission speeds involved, Intel said the videoconferencing picture will be of relatively poor quality, similar to pictures found on monitors in gas stations and apartment lobbies. The system can transmit high-quality still photos, the company said.

The picture quality should improve as new developments like cable modems become available, increasing data transmission speeds.

Intel already sells a video telecon-

ferencing system called ProShare to the business market. ProShare sales have been modest, totaling only about 100,000 units. But unlike the new video system, ProShare requires costly digital telephone lines called ISDN lines. The lines cost as much as several hundred dollars each to install and have higher use charges than traditional telephone lines.

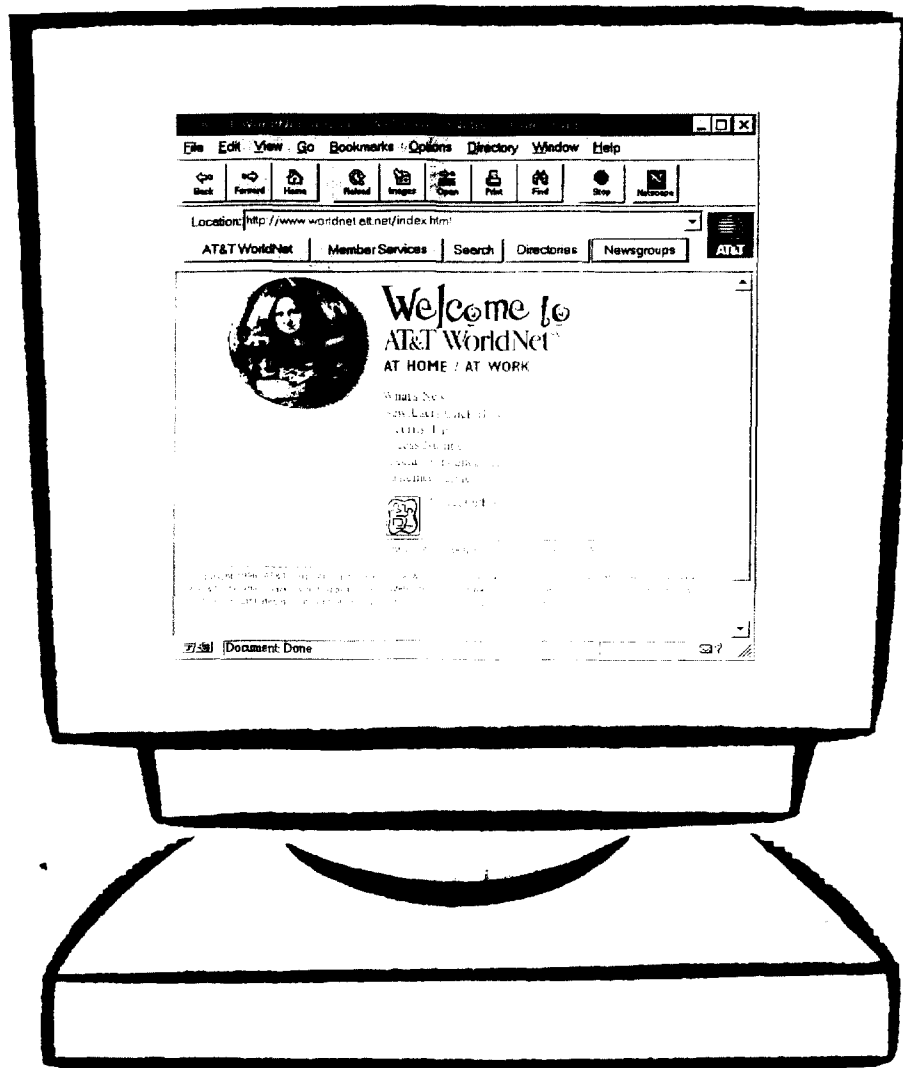
Long-Distance Costs

Teleconferencing also can be done over the Internet. But Internet teleconferencing software is often complex and the connections can sometimes be erratic. Internet teleconferencing does offer the advantage of providing toll-free calling anywhere in the world. By contrast, Intel's system, which uses regular phone connections, requires paying long-distance charges. An Intel spokesman said the company is working on Internet-based video.

Intel, which currently has between 75% and 90% of the chip market, is hoping PC-based video phones will boost the entire microprocessor market.

But, analysts and others have questioned whether there is currently much of a demand by home PC users for face-to-face video with poor picture quality. "There's a big demand, but only if the quality is good," said Geoff Ballew, an industry analyst with Dataquest Inc. Mr. Ballew said developments like data compression and cable modems should eventually improve the quality of video to home PCs and spur demand.

Intel said it will concentrate on providing its system for new computers. But a spokesman said the technology also can be used to develop add-on products for existing machines.



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May 28, 1996, A3.

| INTERNET SERVICE | LAUNCH DATE |
|--------------------------------|----------------------|
| networkMCI | early 1995 |
| WorldNet | March 1996 |
| Bell Atlantic Internet Service | July 1996 |
| Pacific Bell Internet | May 1996 |
| N.A. | summer 1996 |
| N.A. | late 1996/early 1997 |

PacTel to Become First Regional Bell To Offer Unlimited Access to Internet

By LESLIE CAULEY

Staff Reporter of THE WALL STREET JOURNAL

Pacific Telesis Group today plans to begin offering unlimited Internet access to customers throughout California for \$19.95 a month, making it the first Baby Bell to launch an aggressive assault on the consumer cyberspace market.

The San Francisco-based Bell also confirmed that it has signed a letter of intent with America Online to offer Pacific Bell phone customers easy access to the AOL on-line service. Users would simply click on an AOL icon on their computer screens to reach AOL. PacTel, Pacific Bell's parent, said it hopes to offer the AOL service at a discounted rate beginning this summer.

All of the Baby Bells have talked up the possibility of offering easy dial-up access to the Internet, but so far none have delivered to the consumers. Bell Atlantic Corp. announced a consumer service recently and plans to begin offering it in July. Other Bells are likely to follow by the end of the year.

Part of the problem is making Internet access easy enough for the masses to use. The telecommunications giants, including AT&T Corp., have discovered that offering consumers access to the global computer network requires elaborate technical tweaking of the phone network. Consumers, particularly first-time cyber-surfers, also demand a lot of hand-holding.

PacTel has encountered start-up problems. It pushed back the debut of its consumer-access product twice — once in March and again in April — due to unexpected technical glitches and heightened concerns over the company's ability to keep up with demand.

Rick Hronicek, president of Pacific Bell Internet Services, the PacTel unit overseeing on-line ventures, said the company imposed the delay to avoid the type of

public relations debacle recently suffered by AT&T after it aggressively promoted its new Internet-access product, then couldn't keep up with demand. AT&T has so far signed up some 150,000 customers for its WorldNet services, barely a quarter of the 600,000 who inquired about the service.

"We've learned from other launches, including AT&T's," about what not to do in an Internet campaign, Mr. Hronicek said.

Toward that end, PacTel has engineered its telephone network to handle the Internet volume it expects some six months down the road and stands prepared "to double or triple that should we need to," Mr. Hronicek said.

Mindful of the many complaints about other companies' Internet help lines, which routinely ring busy, go unanswered or, worse yet, are answered by people who are unable to offer fix-it advice, the Bell has also set up 24-hour customer-service assistance lines staffed by Internet experts.

PacTel is betting that its approach will help win customer loyalty and, in the end, woo customers away from rivals. "Six months from now we're going to have a whole class of Internet users who won't tolerate the sort of network performance and reliability they are getting from many providers," Mr. Hronicek said.

To jump-start sales, the Bell is offering a month of free service to customers. Under its "Carefree Access Pricing" plan, geared for higher-volume users, customers get 20 hours a month of Internet connections for \$14.95. Each additional hour of use costs 50 cents, up to a maximum of \$19.95, a popular price point with other carriers. Once a customer hits that rate, the offer of unlimited service time kicks in. "Even if you never hang up the phone it's still just \$19.95," a spokesman noted.

For occasional surfers, PacTel is offer

Please Turn to Page A12, Column 2

PacTel Plans to Offer Access to the Internet; Other Bells to Follow

Continued From Page A3

ing as much as 10 hours of access time a month for \$9.95, with each additional hour priced at \$1, under its new "Basic Access" pricing plan.

The charge for access to the Internet would be separate from a user's usual monthly telephone charges. There would also be the customary charge for each call made to dial up the service if such local calls usually carry a charge.

The service includes a free version of Netscape Navigator Personal Edition web browser software, customized for PacTel. Customers can register on-line, or use a toll-free 800-telephone number. There's also a Yahoo! Internet directory search page, a local content site known as "California Cool."

The service will be available initially in four regions of California — Sacramento, San Francisco, Los Angeles and San Diego — covering about 75% of the state's eight million homes. PacTel said the service will also be available via a local phone call for the Stockton and Fresno areas later this summer and to the rest of the state by early next year.

LCI to Offer Firms Internet Access

Va.-Based Long-Distance Carrier Sets Rates 15% Below Competitors

By Mike Mills
Washington Post Staff Writer

LCI International Inc. yesterday became the latest long-distance company to offer direct links to the Internet for its business customers nationwide.

The McLean-based carrier, the nation's sixth-largest long-distance company, said it will offer business customers access to the global network of computer networks at rates 15 percent below comparable offerings by AT&T Corp. and MCI Communications Corp.

"AT&T and MCI are out with Internet access. Sprint [Corp.] is going to be out with a major product launch this summer. LCI wants to be competitive in every way with these companies," said Peter Krasilovsky, an analyst for Arlen Communications Inc. in Bethesda.

Digital Express Group Inc. of

Beltsville, an Internet access company, will provide the Internet connections for LCI. LCI will be responsible for maintenance of the connections and field calls from Internet users who need help.

LCI will not offer the service to residential customers. Instead, it will focus on medium- and large-sized businesses that already use LCI for "private" long-distance telephone connections, in which companies set up special phone lines between different offices or to customer sites.

The typical private-line business customer, company officials say, uses only 40 percent of available capacity on high-capacity private lines. The remainder could instead carry Internet messages, company officials said.

LCI also will offer Internet and long-distance offerings in a single package, giving further discounts on Internet access to customers based

on the amount of voice service they buy in a given month.

The deal comes as Digital Express attempts to shift its business strategy to overcome customer service and capacity problems. The company, which started in 1991 with three employees, is moving away from serving residential and smaller business users with dial-up modem connections.

"We're totally building our network now for business connectivity," said Digital Express chief executive Christopher McCleary.

Digital Express "has a reputation for having run out of capacity and providing poor customer service," Krasilovsky said.

"LCI, which really has an exceptional reputation, would be teaming up with Digital Express and taking their back-office support problems off their hands," he said.

Shaking down the Net

Local governments seek to tax Internet sales and services

It was an innocent enough phone call. But Jim Marchant pried open a Pandora's box that resulted in months of legislative wrangling, a 174-page state Senate bill and, last week, an executive order from Florida Gov. Lawton Chiles. One year ago, Marchant, who heads Mercury Communications, a small Internet service provider (ISP), telephoned the Sun-



shine State's Department of Revenue to determine whether he should add a sales tax to his customers' monthly bills. He was certain he wouldn't have to. After all, Net surfers already pay 10 percent or more in taxes for the telephone services they use to link to the Internet.

But Florida's Department of Revenue gave Marchant an unexpected jolt. According to a decade-old telecommunications law, his customers should have been paying a 7 percent service tax. Then came the crowning blow: Under the law, Marchant's company was subject to an additional 2.5 percent tax on its annual gross receipts. "This is a nightmare," laments Marchant. "The Internet is too young, and the last thing we need is government coming in and retarding growth with taxes." Adds Robert Smith, executive director of the Interactive Services Association, a national umbrella group of online service companies and ISPs: "If enacted poorly, Internet tax laws could wreak havoc."

Marchant and other Internet service providers lobbied heavily against the existing law and helped Florida's Legislature draft a new bill that would ex-



empt them from the Net taxes. But as the legislation floated through Florida's House and Senate, other industries sought similar relief. So, last week, when the bill hit Chiles's desk, he swiftly nixed it. But the governor also ordered that the Internet tax be suspended until 1997, allowing a panel to study its implications. Internet companies in other states may not be so fortunate. Across the country—from Connecticut to Washington State and

Ohio to Louisiana—local governments are scrambling to apply existing tax laws to Net sales and services. And as in Florida, the states are meeting resistance from service providers and other Internet-based companies.

Governments are eyeing the Internet for obvious reasons. Many states and municipalities are cash strapped, and to them, the Net represents fast money. Internet service providers raked in more than \$2 billion last year. And retail sales on the Internet, which were a scant \$108 million in 1995, are expected to leap to \$125 billion by the year 2000. "That's just too much money to ignore," insists G. Ken Johnson Jr., national partner in charge of sales and transactions tax at KPMG Peat Marwick. "But when states try to impose old laws on new industries, they're pounding square pegs into round holes."

Taxing matters. Indeed, legislators and tax lawyers are finding the Net to be a thorny environment. When a consumer in Vermont uses an Internet search engine in another locale, for instance, would some states consider the search a taxable service? Most state and local taxes on sales and services are based on a company's physical presence. But which state gets to levy taxes, for example, when a housewife in Florida uses Virginia-based America Online to make a virtual retail purchase from a furniture company in Texas? Or when a small business located in Arizona sends a passel of E-mail that travels through several states before it reaches clients in Illinois?

That's a quandary Stewart Baker, a Washington, D.C., technology lawyer, is helping to solve. He's assisting several states as they draft Net-friendly tax laws. Baker is also urging states and municipalities to take a broader view of Internet taxation so that some degree of uniformity can be reached. "If we don't have some sort of national legislation," explains Baker, "it'll cost everyone in the way of increased litigation and audits." Baker not only supports an Internet tax but says the money collected could go to a "National Information Superhighway Fund" that governments could use to bring Net connections to inner-city schools or rural libraries.

One way or another, Internet industry executives and entrepreneurs will have to deal with the intricacies of the tax code as well as the complexities of technology. ■

By JOHN SIMONS

■ pad in South America, the giant Ariane 5 rocket was blown up in midair by ground controllers yesterday.

The boom echoed all the way to Lockheed Martin Corp.'s headquarters in Bethesda.

It was the maiden commercial flight of the Ariane 5, the 674-foot, 921-ton, European-built competitor to Lockheed Martin's Titan and Atlas rockets. Ending with smoke, embarrassment and \$500 million worth of vaporized satellites, the launch may have shifted the balance in

Day, policy analyst at the George Washington University Space Policy Institute in Washington.

Day noted that China's space agency also had a major rocket launch failure earlier this year. "Some of the foreign competitors are looking less attractive and that may make the American launchers look better," he said.

Arianespace, the European consortium that developed the rocket at a cost of \$8 billion, brushed off such speculation.

See ROCKET, F3, Col. 3

interview. He will likely continue as chairman and chief executive of the combined firm, Packard Bell said.

The combined company would be called Packard Bell NEC. Barring any problems, the deal is expected to be completed in July.

According to William Zismeister, a senior analyst at International Data Corp. of Framingham, Mass., a combined company would have been the top seller of personal computers, measured by unit sales, in the United States during the first quarter of the year, nosing past the current leader, Compaq Com-

mercial markets. NEC, by contrast, has a strong portable computer division in the United States and a presence in the commercial systems market.

The deal came as little surprise to analysts, as NEC already had invested deeply in privately held Packard Bell, which analysts believe has been under serious financial pressure. Although Packard Bell sells millions of computers each year, it has had trouble making money in the razor-sharp competitive arena of consumer computing.

In August, NEC bought a 20 percent
See PACKARD BELL, F3, Col. 1

Curbs on Cyberspace Ads Proposed

Trade Groups Offer Guidelines as FTC Workshop Airs Privacy Issues

By Kara Swisher
Washington Post Staff Writer

Should spam be jammed and cookies be crumbled on the Internet?

Technologies with these gustatory shorthand names are at the heart of industry, consumer and government debate over privacy in cyberspace.

Yesterday, two major trade groups announced guidelines designed to give consumers more control over "spamming," the practice of sending an unsolicited electronic mail message, typically an advertising come-on, to many thousands of people at once via the Internet.

At the same time, the Federal Trade Commission brought together major Internet players for a two-day workshop examining the handling of personal consumer information on the Internet, including the practice of using "cookies."

Cookies, a feature embedded in many software "browsers" used to navigate the Internet's graphical World Wide Web, allow detailed information about users' visits to a Web page to be put on their computer's hard drive to

be used by that site when they return, often without their knowledge or consent.

"Privacy issues [on the Internet] are powerful consumer issues," said Marc Rotenberg, director of the D.C.-based Electronic Privacy Information Center. "Do we want to force consumers to buy back privacy rights they are already entitled to?"

As the Internet continues to develop as a commercial medium, analysts said that ways—and whether—to control these and many other marketing technologies are heading toward a policy clash similar to one that took place last year concerning how to regulate obscenity on the Internet.

After Congress passed a strict law this year concerning on-line pornography, advertisers, direct marketers and Internet companies began pushing a series of voluntary regulations and technologies to avoid more formal government initiatives concerning privacy on the Internet. But no clear approach has emerged.

"The industry really has an opportunity to regulate itself and this is the window to do it," said Robert Smith, ex-

ecutive director of the Interactive Services Association, a Rockville-based trade association. "We are ahead of government in figuring out ways to meet the needs of the consumer, and we should move forward quickly to do so."

As an example of that, the ISA and the D.C.-based Direct Marketing Association yesterday recommended these voluntary guidelines:

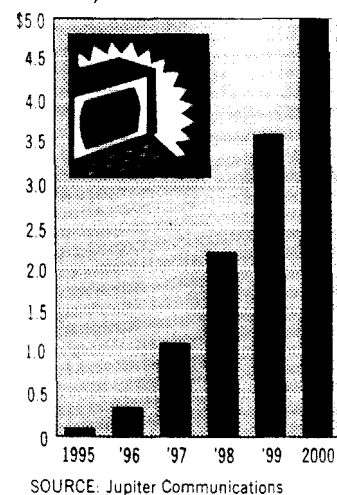
- On-line solicitations should be posted in on-line venues such as newsgroups, bulletin boards and chat rooms only if they are consistent with stated forum policies.
- Ads should be clearly identified as solicitations and also disclose a marketer's identity.
- Consumers should have the ability to opt out of a mass mailing list and not have their e-mail addresses distributed to others if requested.
- The on-line information practices of marketers should be prominently displayed for consumers.

The notion of giving a consumer more "notice and consent" of Internet marketing methods was at the center of the workshop organized by the

AD BOOM

Industry projections have on-line advertising growing by a factor of 50 over the next five years.

Projected on-line advertising revenue, in billions



THE WASHINGTON POST

FTC's Bureau of Consumer Protection, held yesterday and today.

The agency held similar panel discussions last year and has been increasingly active recently in targeting deceptive marketing schemes emerging on the Internet. There is no comprehensive law that protects privacy specifical-

See CYBERSPACE ADS, F3, Col. 3

networks in Florida, North Carolina and Tennessee so it can offer local phone service to its customers there, instead of the long distance. The agreement will connect the two companies' networks so that Warner's customers will be able to call anywhere in the South's nine-state region.

ry orders slipped 0.1 percent in April, the third drop in months, as shrinking soft demand offset other gains. The Commerce Department said orders for both durable and nondurable goods edged a seasonally adjusted 0.1 billion, down from 1.5 billion in March, when a 1.5 percent jump was recorded.

and truck sales increased a bit by 7 percent last month in the United States. Industry analysts showed the notable exception among U.S. manufacturers was Ford, which

See DIGEST, F2, Col. 1

First-quarter profit. Page F3

area. They could've gotten a better up on the competition, but there's plenty of room for them to grow up re," said Ed Comeau, an analyst at Donaldson, Lufkin & Jenrette Securities Corp. in New York. "That's definitely lacking good super res."

The expansion also will come at a steep price, analysts said. It costs about \$10 million to build a store in a new market—where it doesn't have economies of scale or advertising base—so the company's expenses are likely to increase in the near future.

Though Giant will use some outside suppliers for certain goods at its new stores, company officials said the chain will continue to supply all its stores, including those in its new markets. Giant has its Maryland distribution centers in Landover and Silver Spring. Giant stores closed yesterday at 1,121, unchanged on the American Stock Exchange.

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WHAT WASHINGTON'S READERS READ

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The Washington Post Book World

Trade Groups Offer Voluntary Guidelines for Internet Ads

CYBERSPACE ADS. From FI

ly on the Internet. Industry officials hope to keep it that way, using a series of voluntary efforts to give Internet users protections rather than be restricted by government edict. There already is an effort underway by Internet-related companies to agree on technological standards in navigational software that allow a user to determine what information he or she wants dispersed and what he or she wants blocked.

"Privacy is somewhat of a snake ... but a snake can be an opportunity," said Peter Harter, public policy counsel for Netscape Communications Corp., the California-based company that makes the most popular Web browser. "If [a company] can offer better privacy to

customers than others do, they will benefit in the long run."

But privacy advocates noted that companies also must give consumers tools that are easy to use and do not place an undue burden on the user.

"We think privacy laws should apply to the Internet and the technology needs to be developed that gives people real control over their environment," said Janlori Goldman, deputy director of the D.C.-based Center for Democracy and Technology. "We are still at a nascent stage in the development of this industry and people should up front be able to decide whether they want information divulged and under what circumstances."

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Pentagon Hacker Attacks Increase And Some Pose Threat, GAO Says

By JOHN J. FIALKA

Staff Reporter of THE WALL STREET JOURNAL

WASHINGTON—Computer hackers are stepping up attacks on poorly protected Pentagon computers and are using them to invade computer systems of major defense contractors, congressional investigators found.

Jack L. Brock Jr., a computer specialist with the General Accounting Office, told the Senate Permanent Subcommittee on Investigations yesterday that there were an estimated 250,000 hacker attacks on Defense Department computers last year, and that the rate is doubling every year.

Some of the attacks amount to "a million-dollar nuisance," but others pose a "serious threat to national security," concluded a GAO report released at the hearing. He testified that the best-documented attack occurred in March and April 1994 at an Air Force laboratory in Rome, N.Y. Two hackers made more than 150 incursions into the lab's computers, virtually taking the system over for several days. They used the lab's computers to collect passwords from outside users and used them to invade over 100 other computers via the Internet. Among them were five computers systems operated by Lockheed Martin Corp., one in Austin, Texas and four others in Palo Alto, Calif.

An Air Force investigation later led to the arrest of one of the hackers, a 16-year-old boy in London using the *nom de net* "Datastream Cowboy." The other, who collected a flood of military information from Datastream, is known only as "Kuji," and was never tracked down.

"No one knows who Kuji was or where he is," testified James Christy, an Air Force investigator who worked on the case. One of the most difficult times, he said, came when London police were about to arrest Datastream. At that moment, he was using a password obtained through a computer in Rome to enter a nuclear-research facility in South Korea.

Investigators, he said, thought the facility was in North Korea and worried that Datastream could trigger a war because it appeared the computer attack was being launched from a U.S. Air Force facility.

Air Force officials believe that one of the hackers "may have been working for a foreign country interested in obtaining military research data," according to the GAO report.

While Mr. Brock said the attacks

haven't compromised a Defense Department system that contains secret information, he described the problem as serious. That is because 95% of the Pentagon's business is carried on unclassified computer systems that use the Internet, and tampering with logistical and shipping information could cause chaos in continuing U.S. military operations.

Keith Rhodes, another GAO investigator, noted that the Internet — a network of computer networks — was originally developed by the military to protect its communications in the event of a nuclear war. Unlike telephone and radio systems, the Internet depends upon message-switching among large numbers of computers; a message is broken down into "packets" that travel over any number of networks and is reassembled at its destination.

"The strength of the network is its weakness," explained Mr. Rhodes, who said the large numbers of potential pathways makes hackers very difficult to trace.

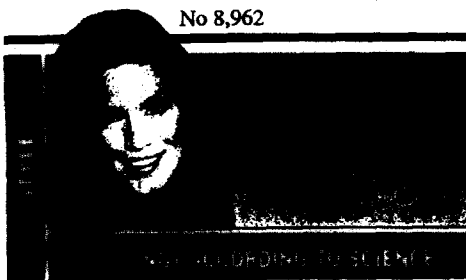


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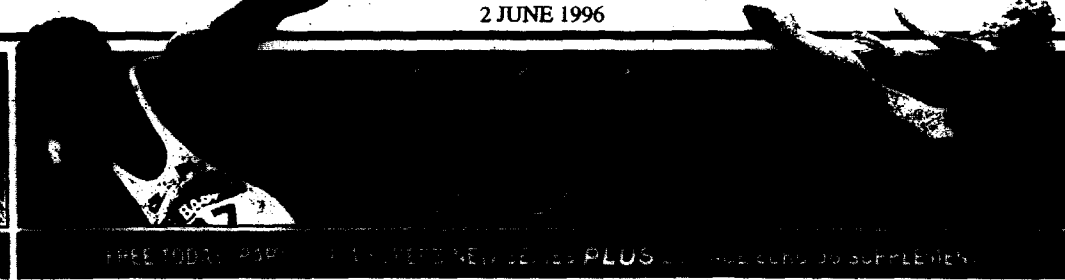
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City surrenders to £400m gangs

CITY of London financial institutions have paid huge sums to international gangs of sophisticated "cyber terrorists" who have amassed up to £400m worldwide by threatening to wipe out computer systems.

Banks, broking firms and investment houses in America have also secretly paid ransom to prevent costly computer meltdown and a collapse in confidence among their customers, according to sources in Whitehall and Washington.

An Insight investigation has established that British and American agencies are examining more than 40 "attacks" on financial institutions in London and New York since 1993.

Victims have paid up to

£13m a time after the blackmailers demonstrated their ability to bring trading to a halt using advanced "information warfare" techniques learnt from the military.

According to the American National Security Agency (NSA), they have penetrated computer systems using "logic bombs" (coded devices that can be remotely detonated), electromagnetic pulses and "high emission radio frequency guns", which blow a devastating electronic "wind" through a computer system.

They have also left encrypted threats at the highest security levels, reading: "Now do you believe we can destroy your computers?"

These authorities have been

unable to stem the attacks, which are thought to originate from the United States. In most cases, victim banks have failed to notify the police. "They have given in to blackmail rather than risk a collapse in confidence in their security systems," said a security director at one blue-chip merchant bank in the City.

A senior detective in the City of London police said: "We are aware of the extortion methods, but the banking community has ways of dealing with it and rarely reports to the police."

European and American police forces have set up special units to tackle the cyber criminals, who, Ministry of Defence sources believe, have netted between £200m and £400m

globally over the past three years. But law enforcement agencies complain that senior financiers have closed ranks and are hindering inquiries.

Experts in the field of information warfare met in Brussels last month to discuss defensive measures. Representatives included Captain Patrick Tyrrell, assistant director of computer information strategy at the Ministry of Defence; General James McCarthy, professor of national security at the US Air Force Academy; General Jean Pichot-Duclos, director of the economic intelligence department of the French Defence Council;

and senior figures from the civilian computer industries.

A separate closed meeting involving representatives from Whitehall and the intelligence community was held to analyse the 40 attacks on British and American financial centres since 1993. A further, secret seminar took place in Washington this weekend.

Kroll Associates, the international investigating firm, confirmed last week that it had acted for financial institutions that have been blackmailed. "One of the problems we face is that the potential embarrassment from loss of face is very

New York. Kroll had evidence that firms in London and New York had been targeted. "The problem for law enforcement is that the crime is carried out globally, but law enforcement stops at the frontier," he said.

Yesterday a Bank of England spokesman acknowledged the threat from the extortionists: "We are aware of this. It does exist. It is extortion and fraud."

But the spokesman also insisted: "It is not the biggest issue in the banking market."

Scotland Yard is now taking part in a Europe-wide initiative to catch the cyber criminals and has appointed a senior detective from its computer crime unit to take part in an operation code-named Lathe. Gambit.

Such is the secrecy that few de-

tails about the inquiry have emerged.

In America, the FBI has set up three separate units to investigate computer extortion.

The NSA believes there are four cyber gangs and has evidence that at least one is based in Russia. The agency is now examining four examples of blackmail said to have occurred in London:

● January 6, 1993: Trading halted at a broking house after blackmail threat and computer crash. Ransom of £10m paid to account in Zurich.

● January 14, 1993: a blue-chip bank paid £12.5m after blackmail threats.

● January 29, 1993: a broking house paid £10m in ransom after similar threats.

● March 17, 1995: a defence firm paid £10m in ransom.

In all four incidents, the gangs made threats to senior directors and demonstrated that they had the capacity to crash a computer system. Each victim conceded to the blackmailers' demands within hours and transferred the money to offshore bank accounts, from which it was removed by the gangs within minutes.

The techniques have varied. In London, criminals posing as marketing firms have gained detailed knowledge of a target's system by interviewing the heads of information technology departments. In some cases, they have even issued questionnaires to unsuspecting

continued on back page

Cyber extortionists

continued from page 1
officials. Armed with this information, they have been able to breach security and leave encrypted messages warning of their capability.

The gangs are believed to have gained expertise in information warfare techniques from the American military, which is developing "weapons" that can disable or destroy computer hardware. Some are also known to have infiltrated banks simply by placing saboteurs on their payroll as temporary staff.

Little is yet known about the identities of the gangs but, according to the NSA, America is the main source of the attacks. It believes that at least

one other group originates from Russia and has followed the movement of money to the former Soviet states.

A spokesman for the Metropolitan police said: "There is potential for extortion from those purporting to know how to damage computer systems."

"The computer crime unit liaises where necessary with its Euro counterparts to discuss cross-frontier crimes."

One merchant bank director said yesterday: "You will never get a financial institution to admit it has an extortion policy, let alone that it has paid money to blackmailers."

Additional reporting: Peter Warren

WILKES BELIEVE
NATURALISTS believe the arrival of seven orca "killer whales" off part of the Welsh coast hit by the Sea Empress oil disaster is a sign that the clean-up has been a success.

OVERSEAS PRICES

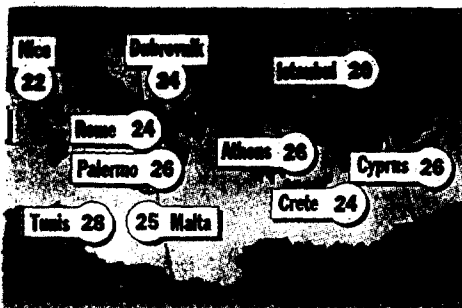
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| *Cyprus | CE2.25 | *Portugal con Esc | 800 |
| *Denmark | Dkr 32 | *Spain | Ptas 800 |
| *Finland | Fmk 32 | *Sweden | Skr 42.50 |
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| *Germany | DM 8.0 | *USA East | \$6.00 |
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to be examined to see if it, like others by the artist, is at risk

WELSH OUTLOOK



Forecast: Resorts

Iberia and north Africa should be dry with plenty of sunshine and it will become hot, especially over Spain. Italy and more central parts of the Mediterranean will have some showers early in the week. Eastern parts will be rather unsettled with showers although western Turkey should be fine.

| | Today | Monday and Tuesday |
|---------------|------------|------------------------|
| Agadir | 25 Sunny | Dry and sunny |
| Algiers | 25 Fair | Dry, some sunshine |
| Algarve | 24 Fair | Warm and mostly sunny |
| Athens | 26 Sunny | Warm and sunny |
| Canaries | 25 Fair | Dry with sunny spells |
| Costa del sol | 25 Showers | Dry, some sunshine |
| Crete | 24 Fair | Warm and sunny |
| Cyprus | 26 Showers | Sunshine and showers |
| Dubrovnik | 24 Showers | Sunshine and showers |
| Istanbul | 20 Fair | Dry with sunny spells |
| Madeira | 22 Fair | Dry with some sunshine |
| Malta | 25 Sunny | Dry with sunny spells |
| Majorca | 24 Cloudy | Becoming hot and sunny |
| Nice | 22 Fair | Rain at first |
| Palermo | 26 Sunny | Dry, some sunshine |
| Rome | 24 Sunny | Some showers |
| Tunis | 28 Fair | Dry with some sunshine |

Europe

| | | |
|------------|------------|-------------------------|
| Amsterdam | 17 Showers | Sunshine and showers |
| Berlin | 20 Thunder | Some thundery showers |
| Bonn | 19 Rain | Becoming dry and sunny |
| Brussels | 18 Rain | Sunshine and showers |
| Copenhagen | 15 Showers | Cloudy, rain at first |
| Geneva | 21 Thunder | Rain at first |
| Madrid | 25 Thunder | Hot and sunny |
| Milan | 27 Fair | Showers, heavy at times |
| Oslo | 15 Fair | Rain at times |
| Paris | 18 Rain | Becoming sunny later |
| Stockholm | 17 Cloudy | Rain at times |
| Vienna | 24 Showers | Showers, some thundery |

Noon yesterday: Britain

| | | | |
|------------|------------|------------|-------------|
| Belfast | 13 55 Fair | Guernsey | 13 55 Sun |
| Birmingham | 15 59 Fair | Inverness | 13 55 Fair |
| Blackpool | 13 55 Fair | Jersey | 16 61 Fair |
| Bristol | 13 55 Sun | London | 15 59 Fair |
| Cardiff | 14 57 Fair | Manchester | 12 54 Cloud |
| Edinburgh | 12 54 Fair | Newcastle | 13 55 Cloud |
| Glasgow | 13 55 Fair | Ronaldsway | 12 54 Sun |

The world

| | | | |
|------------|-------------|----------------|-------------|
| Akrotiri | 24 75 Sun | *Mexico City | 23 75 Fair |
| Bahrain | 34 93 Sun | *Miami | 30 86 Fair |
| Barcelona | 22 72 Fair | Moscow | 14 57 Fair |
| Beirut | 24 75 Sun | Nairobi | 24 75 Fair |
| Biarritz | 15 59 Fair | New Delhi | 41 106 Sun |
| Budapest | 26 79 Sun | Peking | 31 88 Fair |
| Cairo | 28 82 Sun | Perth | 17 63 Fair |
| *Chicago | 21 70 Sunny | Prague | 27 81 Sun |
| Cologne | 11 52 Rain | Rhodes | 26 79 Sun |
| Copenhagen | 11 52 Fair | Rio de Jan | 22 72 Sun |
| Cortu | 27 81 Sun | *Santiago | 16 61 Sunny |
| Dublin | 15 59 Fair | Seoul | 33 93 Sun |
| Faro | 26 79 Sun | Singapore | 32 90 Fair |
| Florence | 26 79 Sun | Sydney | 20 68 Sun |
| Frankfurt | 19 66 Fair | Tel Aviv | 25 77 Fair |
| Gibraltar | 23 73 Sun | Tenerife | 26 79 Sun |
| Helsinki | 16 61 Cloud | Tokyo | 19 64 Fair |
| Hong Kong | 30 86 Sun | *Toronto | 20 68 Sunny |
| Istanbul | 38 100 Sun | Vaencia | 32 77 Fair |
| London | 16 61 Sun | *Vancouver | 12 55 Cloud |
| Lyons | 22 72 Fair | Venice | 7 57 Fair |
| Madrid | 16 61 Sun | Wellington | 4 57 Cloud |
| Moscow | 14 57 Fair | Zurich | 12 54 Sun |
| | | *Nairobi today | |

showers

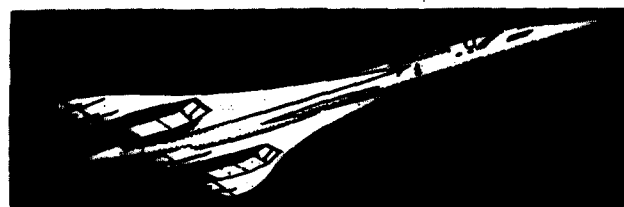
night: A small depression to the SW of the British y of Biscay. England and Wales will have a day of ne showers will be confined to N and W regions, SW counties will have a spell of more continuous a time. Temperatures will be around normal with and N Ireland will have sunny spells with showers. y, perhaps with hail and possibly thunder. Some E continue to moderate.

The UK last week

ids E, ind: Warmest by day: Gravesend, Kent (30th) 26C
owers Coldest by night: Altnaharra, Highlands (27th) -1C.
63F). Wettest: Aspatia, Cumbria (29th) 0.77in.
times Sunniest: Hunstanton, Norfolk (31st) 14.5hr.

Motorway works

Isle of M1: West Yorkshire, roadworks at J47 (Leeds).
ntervals Until August 27, 1997.
ght to M3: Hampshire, various lane closures are in place for cabling works at J14 the M27. Until June 14.
M4: London, the Elevated Section between J1-3 is closed eastbound between 9pm and 6am, June 3 until June 6.
Wind M5: South West Bristol, lane restrictions both ways between J17-20 (Bristol West and Clevedon). Until August 8.
s, some M6: Cheshire, lane restrictions between J20-21A. Until June 12.
Wind M8: North Lancashire, roadworks around J6 (Newhouse), with eastbound traffic down to a single lane and westbound traffic restricted to 2 narrow lanes. Until July 8; Glasgow, Westbound three narrow lanes at J15, with the westbound Stirling Road entry slip and eastbound Castle Street exit slip closed. Until November 1.
ecome M25: Surrey, widening between J6-10 (Godstone and Leatherhead and the A3). Until further notice.
16C M90: Perth and Kinross, contrailow at J10 (Fordon Bridge). Until October.
Jtlook M167M: Newcastle, roadworks. Until June 8.
outh. Information: AA Roadwatch



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Concorde supersonic to Brussels on 21 June • two night QE2 cruise to Southampton via Le Havre (for Paris) • Orient-Express to Victoria £1,099

BELGIUM OR GREENLAND

Eurostar to Brussels on 21 June • tour capital and Medieval Bruges • Concorde supersonic return £499

Fly to Reykjavik on 3 July • three nights in Iceland • city tour • Golden Falls • see Midnight Sun in Grimsey • two nights in Greenland • helicopter to icecap • Iceford boat trip • Concorde return £1,999

ORIANA AND ORIENT-EXPRESS

Orient-Express to Southampton on 22 July • four night Oriana cruise via Madeira • four nights in Tenerife £999

Concorde to Marrakech on 29 July • five night Oriana cruise from Casablanca via Praia da Rocha, Lisbon and La Coruna • Orient-Express from Southampton £1,999

Orient Express to Southampton on 31 Aug. • six night Oriana cruise to Monte Carlo via Gibraltar and Livorno (for Florence) • Concorde supersonic from Nice £1,999

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Bacon's

103

Slaying the Internet beast

... a veritable system of blood circulation, complicated, dividing and reuniting, branching, splitting, extending, throwing out feelers, offshoots, taproots, feeders—diminutive little bloodsuckers that shot out from the main jugular and went twisting up into some remote country, laying hold of some forgotten village or town, involving it in one of a myriad branching coils, one of a hundred tentacles, drawing it, as it were, toward that center from which all this system sprang. It was as though the state had been sucked white and colorless, and against this pallid background the red arteries of the monster stood out, swollen with lifeblood, reaching out to infinity, gorged to bursting; an excrescence, a gigantic parasite fattening upon the lifeblood of an entire commonwealth.

—Frank Norris,
The Octopus

Norris's graphic representation of ruthless, power-hungry railroad companies spreading their steel tentacles across America in the late 19th century fits the image some telecoms carriers and countries are painting of the Internet.

Their goal: Slay, or at least stay, the beast.

Fearful that the Internet will "steal revenue and jobs," the America's Carriers Telecommunication Association, whose 160 members include MCI and Sprint, is calling on the FCC to make Internet telephony software and service providers play by the same rules as conventional phone companies.

On the other side of the Atlantic, the Euro-

pean Parliament is attempting to apply broadcasting laws to the Internet and commercial on-line services, a move that would subject the burgeoning industry to onerous advertising restrictions, additional taxes and content quotas.

Meanwhile, at the national level, European governments are battling over whether broadcast or telecoms rules should be used to control the Internet. And countries including China, Singapore and Saudi Arabia are attempting to

Still, there is no turning back. Voice, then video, over the Internet—that's the future, says one industry pundit.

FCC attempts to impose telecoms regulations on the Internet could negatively impact the development of the Net as a framework for interactive communications, especially if regulators in other countries use such a move to justify even more restrictive actions.

And applying broadcasting rules to interactive and on-line services could be equally damaging.

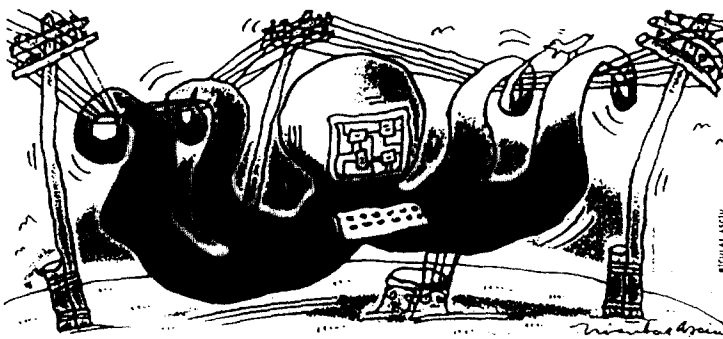
But the Internet and other types of on-line service providers should not be above the law either. Rather than treating the Internet and on-line services as a larger-than-life beast that must be manacled by either telecoms or broadcasting rules, countries can apply sector-specific rules.

For example, Reuters on-line services can and

should be governed by rules pertaining to financial services rather than broadcast rules. And basic copyright and obscenity laws that apply to the print or electronic media could still cover Net content.

Telcos must work the Internet and similar engines of change into their long-term business plans rather than toil to stave them off. For the telecoms world will change even faster than even the most respected telco seers now imagine.

Today's Internet is yesterday's steam-powered locomotive.



monitor what citizens can peruse on the Net.

All these efforts are futile. They represent hasty reactions to an all-pervasive, all-powerful creature conjured up by panicked corporate plutocrats.

The Internet is indeed a major threat to telcos, but it still has major shortcomings: Internet voice telephony is often unreliable and of poor quality; corporate data sent over the Net is not as secure as over private lines or public data networks; and most consumers still do not own a modem.


Bacon's

103 Only disconnect

THE fight over access fees is really a question of good manners: the Internet, argue the telecom companies, is abusing their hospitality, overloading their networks. Another set of battles could, one day, prove much more turbulent: these are taking place in areas where the Internet is robbing the telecoms companies of customers.

In March the America's Carriers Telecommunication Association, an organisation of about 160 of the smaller long-distance telephone companies, filed a petition with America's Federal Communications Commission to regulate attempts to use the Internet for voice calls, claiming that this represented unfair competition. Meanwhile, Canadian telecommunications regulators are trying to force an Internet company in Ontario to pay fees to Canadian telephone companies for the same reason.

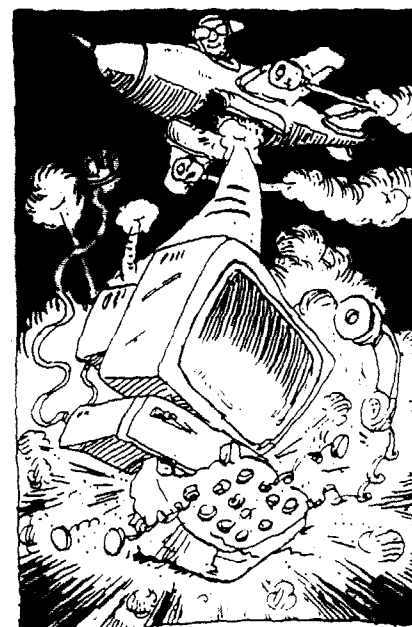
Voice calls on the Internet are still something of a novelty. They usually require prearranged connections: a fear of being regulated keeps Internet telephony services from linking into the regular telephone networks on anything but an experimental basis. Users also have to be tolerant of the network's chronic delay and distortion. On the other hand, such calls are in effect free. Once they reach a

certain (minimal) level of quality, millions will make them.

A more immediate threat to the telephone carriers comes in the business of providing private data networks for companies. Sun Microsystems, a computer maker, has already announced plans to abandon the expensive global network it leases from several telephone companies, including America's MCI and Sprint, and to connect its scattered offices together via the Internet.

Defections of this sort should worry telephone companies. A few years ago, they were counting on rich profits from services such as voice mail and data services, reasoning that their huge networks meant that they alone could offer these things. Now, thanks to the Internet, anyone can offer such services; there is no particular advantage in owning the underlying telephone lines. Worse, the Internet is already starting to embrace more traditional telephone services, from fax services to videoconferencing.

Within a few years telephone companies will have to change accordingly, argues Analysys, a British consultancy. Its suggestion: break in two. One part would run the network itself, selling capacity to all comers; the other would offer services, starting with regular telephony but mov-



ing anything from news to financial data.

Analysys argues that those telephone companies that choose to remain vertically integrated are in danger of being dragged down by regulatory restrictions on cross-subsidies, as well as by their own mammoth size. In contrast, those that split up will be able to compete much more effectively with nimble Internet competitors. Better, arguably, than praying for regulators to save your skin.

America Online May Face Long, Hot Summer As Stock Wilts 10% on Some Bearish Reports

HEARD ON THE STREET

By THOMAS E. WEBER

Staff Reporter of THE WALL STREET JOURNAL

In Wall Street's torrid love affair with America Online, springtime is proving to be anything but romantic.

Investors sold off shares in droves yesterday, sending America Online's stock down 5%, or 10%, to 47% on four-times-normal Nasdaq Stock Market volume of 11.2 million shares, after analysts at Montgomery Securities and Cowen & Co. issued bearish reports.

Some devotees, spotting a buying opportunity, maintain that the stock's 33% decline since its peak of 71 in early May is reason enough to be bullish. After all, Wall Street lusts after Internet stocks, and America Online is the industry heavyweight with six million subscribers.

But doubters fret over a litany of woes. Subscriber growth, always the stock's main sizzle, now shows signs that it could fizzle. Top insiders are selling shares rather than buying. A new discount plan could hurt revenue. And the bogeyman of on-line services, the Internet, poses an obvious competitive threat.

Yesterday, analyst Jeff Gorman of Cowen, who already had a "hold" rating on the stock, slashed his domestic subscriber-growth forecast for AOL nearly in half, from 750,000 new pay-as-you-go subscribers this quarter to only 400,000.

And David Readerman of Montgomery pulled his previous buy recommendation, saying: "The expected seasonal slowing in AOL's core business sharply contrasts to the uninterrupted continued boom in Internet activity."

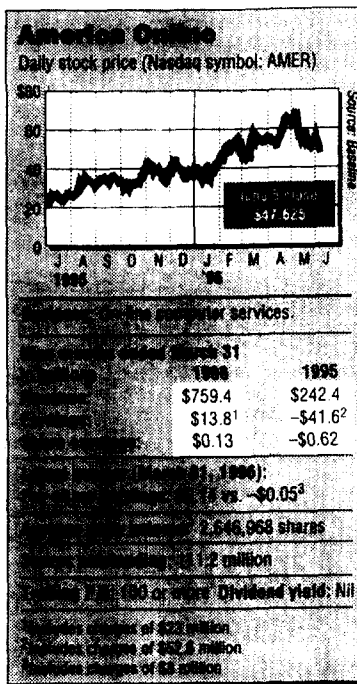
Some AOL-lovers say the two analysts sparked an overreaction. "You never want to count America Online out," says a bullish Jamie Kiggen of Bear, Stearns. "We could have some choppy water here for a time, but they have consistently shown they can provide catalysts of one sort or another."

Last month, AOL, of Vienna, Va., unveiled an alliance to begin offering its on-line service in Japan, the latest step in the company's global expansion that has already reached into Europe. And it will soon unveil new software that should soup up the service.

But America Online began to worry some admirers when it released its fiscal third-quarter earnings report last month. The numbers were impressive, but the company also cautioned that it would temporarily rein in its costly subscriber-acquisition efforts.

America Online has argued that its plan makes sense to slow subscriber growth temporarily. Summer months are typically slow, as even Internet fanatics tend to spend more time outdoors. The company said it would use the lull to focus on retaining current subscribers, and reduce membership "churn"—the number of quitters—that short-sellers love to cite.

But for a stock whose mantra has been growth, growth, growth, that disclosure was more than a little unsettling. AOL's detractors argue that the company



may be disguising, as a summer-slowdown strategy, what might be the real story—that its subscriber growth is fading.

After all, while AOL says the summertime is slow, last summer the company was able to bring on roughly 700,000 new members in the quarter ended last June 30, and 700,000 more "newbies" in the following quarter ended Sept. 30. So why should summer '96 be any different?

Even more worrisome, the company is primed to implement a new "heavy user" pricing option for subscribers on July 1. It will let users pay \$19.95 a month for 20 hours of on-line time. That's well below the \$54.20 they would pay under the current price plan, but not as good as AT&T's offer of unlimited on-line time for \$19.95, and the \$17.95-a-month unlimited plan for CompuServe's WOW! service.

While AOL's new pricing plan may deter some loyalists from jumping ship, it will most likely also cut into the company's revenue. Alan M. Braverman, an analyst at Hanifen Imhoff Inc., thinks the impact could be dramatic. "The top 15% of AOL's users represent 50% of the revenue," he says. Those on-line addicts' average bill is almost \$63 a month, which could drop to \$43 a month under the new plan. That could eventually shave 10% off America Online's total revenue, he argues.

As for the insider selling, America Online argues that's nothing unusual. Though AOL Chairman Steve Case last month sold more than 200,000 shares, or 8% of his holdings, a company spokeswoman notes that Mr. Case still has "85% of his net worth" in AOL. She adds that the transaction was in line with his typical pattern of selling some shares during the "window" open to AOL insiders following each quarterly earnings release.

While Mr. Braverman has only a tepid "hold" rating on the stock, he isn't willing to count AOL out. He explains: "They always have a new story, a new feature, a new alliance to keep AOL hot."

AT&T's Internet-Access Service Is Born Premature

Bigger-Than-Expected Demand Makes Signing Up a Hassle for Customers

By JARED SANDBERG

Staff Reporter of THE WALL STREET JOURNAL
Looking to get Internet access from your long-distance carrier? Please hold.

That is the message going out to customers who answer AT&T Corp.'s recent call to cyberspace — an offer of five free hours a month of Internet access. AT&T said yesterday it has signed up more than 150,000 new customers for its WorldNet service in just nine weeks. The bad news: That amounts to only one-quarter of the 600,000 callers who want to sign up for AT&T's new service.

Hundreds of thousands of would-be customers have been left waiting for weeks. Some of the newcomers who have signed up say the start-up has been rocky, with customer help lines overwhelmed and often tied up, and technical support sometimes lacking.

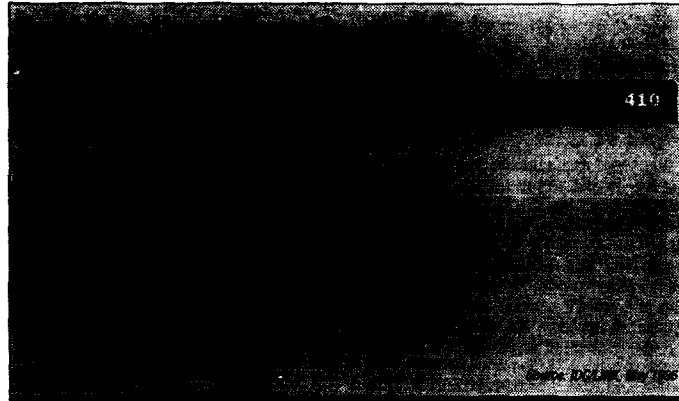
"I called the first day and got on the list, but I've never received the diskettes," John Dougherty, a 70-year-old retiree in Naples, Fla., said five weeks after the launch. Finally, after waiting about two months, Mr. Dougherty has received the diskettes — but says he is "scared" to install the service because "my friend who put them on had his system blown out."

Anatomy of a Rocky Start

What went wrong? In AT&T's case, its bold announcement of an aggressive Internet assault on Feb. 27 turns out to have been premature. While the company was hailing the offer of free access to all of its 80 million residential customers, it didn't have a large-enough computer network, the necessary customer-service personnel and an automated sign-up process ironed out well enough to serve even 1% of its customer base.

Company executives admit as much. "I'm not trying to say that I didn't make a mistake," says Thomas Evislin, the top executive of AT&T's WorldNet service. "I was responsible for making the decision to bring it out, and I was wrong," he says, adding that he underestimated how fast customers would sign up. But he maintains that AT&T has fixed many of the flaws, expanded its help-line staff and is building up its Internet-access network, although he declines to offer many details.

AT&T and other telecommunications titans have all the right assets to become big-time players in the Internet-access business: millions of phone customers, extensive networks over which Internet traffic already travels, and billions in



annual ad spending to reinforce their brand names and reliability in TV commercials with a homey, family-style feel.

That is why their entry into the Internet industry was greeted with unrivaled fanfare. AT&T's announcement of a year of free, limited access two months ago sent shivers through Wall Street, knocking hundreds of millions of dollars off the market value of several Lilliputian rivals that are far ahead of AT&T in the Internet-access business.

Putting Brand Names at Risk

But as AT&T's experience shows, the telecommunications heavyweights are finding that offering consumers access to the global computer network isn't exactly as easy as making a phone call. The business is fraught with technical complications and requires tremendous customer hand-holding and expense. Yet prices are falling, making it difficult to turn a profit, much less justify spending more to rev up the new business. If the big carriers fail to offer reliable service in this alien market, they risk damaging their closely guarded brands.

"Whenever you try to leverage your brand name into a new market, you're going to put it at risk," says Nick Donatiello, president of Odyssey Ventures Inc., a high-tech research firm. "Everybody recognizes how well-positioned AT&T is, but they have consistently failed to execute," he says.

MCI Communications Corp., which says it has 200,000 consumer users, isn't faring much better by some would-be customers. David Hollis, a 43-year-old

free-lance writer in Hubbardville, N.Y., requested MCI's Internet software weeks ago. "They said it would arrive shortly. I never heard back." That struck him as curious, given that "you can't turn the TV on any hour of the day without seeing their networkMCI commercials."

Rival Sprint Corp., which has long offered businesses Internet access, vows to perfect its consumer service before launching later this summer. "We're taking our time to do it right because we don't want to be caught as AT&T was when they had more demand than the ability to handle it," says a Sprint spokeswoman. "It's not easy."

To be sure, the smaller access providers most threatened by AT&T's foray have their service problems, too. But customers seem to have less patience for rookie-style gaffes from a household name like AT&T. Anthony Reeves, a computer consultant in Prescott, Ariz., was eager to use AT&T to surf the Net because he would "be assured of a solid system." But he says: "I was wrong." When he called AT&T to ask about the Internet offer, the staffer he got "didn't know any more about the Internet than a salesperson at Wal-Mart," he says.

Then he found out that because of the short reach of AT&T's network, he would have to make a long-distance call to reach the "free" service — at a cost of about 26 cents a minute. So Mr. Reeves called MCI, which matched AT&T's \$19.95 offer a few weeks after the pricing was announced. But that service would also require a long-distance call, costing \$66.75 each month if

he used the Internet for an hour each day, he figures.

Many AT&T customers say the service is easy to use and speedier than other offerings. "I don't get the hang-ups, and I like the nationwide dial-up numbers," which are good for travelers, says John Mayson, an electrical engineer for Harris Corp.

But even he says signing on to the service was "a real bear." After waiting five weeks for the diskettes, he tried to log on to the service to get a user name and password but was continuously dropped by the so-called registration computers. "The connection would disconnect and you'd have to start over. It literally took me all evening, from after dinner to 11 p.m.," he says, adding that the customer-support lines were clogged. "I would either get a busy signal, or it would say that your call can't be completed at this time," says Mr. Mayson.

Such snags caught AT&T by surprise. In recent weeks, the registration computers were plagued by bugs that made it difficult to sign on for the first time without losing the connection. AT&T says it has fixed the buggy software and that it has increased the number of support personnel by "150%" — but refuses to say how many people are on staff.

Still, AT&T lags behind even tiny competitors in the breadth of its Internet gear. While its telephone network is the most sophisticated in the world, AT&T has only 200 Internet "access points" — areas where users can access the service with a local telephone call. That is fewer outposts than many far smaller rivals. PSINet has some 250 access points; NetCom On-line Communications Services Inc. has 230. MCI has even fewer access points, amounting to only 120.

That forces more customers to pay long-distance charges to get access to AT&T's "free" Internet service. David Thompson, a retired chemical engineer in Westport, Mass., keeps a winter home in Naples, Fla., where he had signed up with AT&T as a cheaper alternative to America Online. But going on-line from Naples requires a long-distance call. "It's not worth it," he says.

Moreover, after installing the WorldNet software, "I got all sorts of error messages, so I was completely discouraged." The AT&T service "seemed too good to be true," says Mr. Thompson, who is still hunting for a new service. "And, of course, it wasn't true."